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A high resolution Late Glacial to Holocene record of climatic and environmental change in the Mediterranean from Lake Ohrid (Macedonia/Albania)

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Lake Ohrid (Macedonia/Albania) is one of the world's oldest lakes and is renowned for its high degree of biological diversity. It is the target site for the ICDP SCOPSCO (Scientific Collaboration on Past Speciation Conditions in Lake Ohrid) project, an international research initiative to study the links between geology, environment and the evolution of endemic taxa. In 2011 a 10-meter core was recovered from the western shore of Lake Ohrid adjacent to the Lini Peninsula. Here we present high-resolution stable isotope and geochemical data from this core through the Late Glacial to Holocene to reconstruct past climate and hydrology (TIC, $\delta^{18}\text{O}_{\text{calcite}}$, $\delta^{13}\text{C}_{\text{calcite}}$) as well as the terrestrial and aquatic vegetation response to climate (TOC, TOC/N, $\delta^{13}\text{C}_{\text{organic}}$, Rock-Eval pyrolysis). The data identify 3 main zones: (1) the Late Glacial-Holocene transition represented by low TIC, TOC and higher isotope values, (2) the early to mid-Holocene characterised by higher TOC, TOC/N and lower $\delta^{18}\text{O}_{\text{calcite}}$, and (3) the late Holocene which shows a marked decrease in TIC and TOC. In general there is an overall trend of increasing $\delta^{18}\text{O}_{\text{calcite}}$ from 9 ka to present, suggesting progressive aridification through the Holocene, which is consistent with previous records from Lake Ohrid and the wider Mediterranean region. Several proxies show commensurate excursions that imply the impact of short-term climate oscillations, such as the 8.2 ka event and the Little Ice Age. This is the best-dated and highest resolution archive of Late Glacial and Holocene climate from Lake Ohrid and confirms the overriding influence of the North Atlantic in the north-eastern Mediterranean. The data presented set the context for the SCOPSCO project cores recovered in spring–summer 2013 dating back into the Lower Pleistocene, and will act as a recent calibration to reconstruct climate and hydrology over the entire lake history.